

Application Serial No.: 10/091,024  
 Applicant(s): Houser et al.

Docket No.: N.C. 83,517

### Amendments to the Claims:

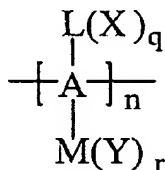
This listing of claims will replace all prior versions and listings of claims in the application.

### Listing of Claims:

Claim 1 (currently amended) A ~~hyperbranched~~ polymeric compound having:

- (1) a polymer backbone portion that is at least partly ~~randomly~~ branched;
- (2) at least one pendant arm extending from said polymer backbone; and
- (3) at least one halogen substituted alcohol or phenol group substituted at the pendant group(s) of the polymer backbone portion;

wherein said compound has the general formula:



wherein A is the ~~hyperbranched~~ backbone portion of the polymer and is -Si-

(CH<sub>2</sub>)<sub>n</sub>- wherein n = 1;

L and M are independently selected pendant groups of the polymer backbone and

L is C<sub>3</sub>H<sub>5</sub> and M is C<sub>3</sub>H<sub>5</sub>;

N and Y are independently selected halogen substituted alcohol or phenol groups

and X is hexafluoroisopropanol and Y is hexafluoroisopropanol; and

q and r are independently selected and at least q is 1 and r is 1; and

n is at least 3.

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Claim 2 (canceled)

Claim 3 (currently amended) The compound of ~~claim 2~~ claim 1 wherein A is composed of units selected from the group consisting of silicon atoms, carbon atoms, siloxane, carbosilane, silylene moieties, and combinations thereof.

Claim 4 (currently amended) The compound of ~~claim 2~~ claim 1 wherein A is composed of units selected from the group consisting of Si-alkylene, Si-arylene, and Si-alkenylene units.

Claim 5 (currently amended) The compound of ~~claim 2~~ claim 1 wherein L and M are independently selected from the group consisting of -alkylene-Si-(alkenylene)<sub>3</sub> and -alkylene-Si-(alkylene-arylene)<sub>3</sub>.

Claim 6 (currently amended) The compound of ~~claim 2~~ claim 1 wherein:

- A is selected from the group consisting of -Si-(CH<sub>2</sub>)<sub>n</sub>-, where n=1-3, -Si-(CH(CH<sub>2</sub>C<sub>6</sub>H<sub>5</sub>))- , and ~~-Si-(CH<sub>2</sub>(C=CH<sub>2</sub>)CH<sub>2</sub>)-~~ -Si-(CH<sub>2</sub>(CH=CH)CH<sub>2</sub>)-;
- L and M are independently selected allyl or propylenephenylene groups; and
- X and Y are hexafluoroisopropanol groups.

Claim 7 (currently amended) A solution for preparing a chemical vapor sensor comprising:

- (i) an amount of a ~~hyperbranched~~ compound having
- (1) a polymer backbone portion that is at least partly ~~randomly~~ branched;

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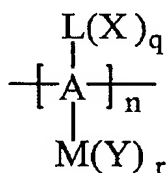
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(2) at least one pendant group extending from the polymer backbone portion;

(3) at least one halogen substituted alcohol or phenol group substituted at the pendant group(s) of the polymer backbone portion, effective to enhance the sensitivity of the sensor to hydrogen bond accepting vapors or nitroaromatic compounds; and

(b) a solvent for said ~~hyperbranched~~ compound;

wherein said compound has the general formula:



wherein A is the ~~hyperbranched~~ backbone portion of the polymer and is -Si-

(CH<sub>2</sub>)<sub>n</sub>- wherein n = 1;

and M are independently selected pendant groups of the polymer backbone and

L is C<sub>3</sub>H<sub>5</sub> and M is C<sub>3</sub>H<sub>5</sub>;

and Y are independently selected halogen substituted alcohol or phenol groups

and X is hexafluoroisopropanol and Y is hexafluoroisopropanol; and

q and r are independently selected and at least q is 1 and r is 1; and

n is at least 3.

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Claim 8 (cancelled)

Claim 9 (currently amended) The solution of ~~claim 8~~ claim 7 wherein A is composed of units selected from the group consisting of silicon atoms, carbon atoms, siloxane, carbosilane, silylene moieties, and combinations thereof.

Claim 10 (currently amended) The solution of ~~claim 8~~ claim 7 wherein A is composed of units selected from the group consisting of Si-alkylene, Si-arylene, and -Si-alkenylene.

Claim 11 (currently amended) The solution of ~~claim 8~~ claim 7 wherein:

A is selected from the group consisting of -Si-(CH<sub>2</sub>)<sub>n</sub>-, where n=1-3, -Si-(CH(CH<sub>2</sub>C<sub>6</sub>H<sub>5</sub>))-, and ~~-Si-(CH<sub>2</sub>(C=CH<sub>2</sub>)CH<sub>2</sub>)-~~ -Si-(CH<sub>2</sub>(CH=CH)CH<sub>2</sub>)-;  
 L and M are independently selected allyl or propylenephénylene groups; and  
 X and Y are hexafluoroisopropanol groups.

Claim 12 (currently amended) The solution of ~~claim 8~~ claim 7 wherein L and M are independently selected from the group consisting of -alkylene-Si-(alkenylene)<sub>3</sub> and -alkylene-Si-(alkylene-arylene)<sub>3</sub>.

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Claim 13 (original) The solution of claim 7 wherein said solvent is selected from the group consisting of hexane, chloroform, dichloromethane, toluene, xylenes, acetonitrile and tetrahydrofuran.